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# UK Patent Application (19) GB (11) 2 011 727 A

(21) Application No. 7846698  
(22) Date of filing 30 Nov. 1978

(23) Claims filed 30 Nov. 1978

(30) Priority data

(31) 54083/77

(32) 29 Dec. 1977

(33) United Kingdom (GB)

(43) Application published  
11 Jul. 1979

(51) INT CL<sup>2</sup>

H05K 5/00 // 7/00

(52) Domestic classification

H1R 1CX 1P 3C1 3W1

(56) Documents cited

GB 1474966

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GB 1108129

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GB 1090656

GB 1038007

GB 1035219

GB 922124

(58) Field of search

H1K

H1R

(71) Applicant

The Plessey Company Limited,  
Vicerage Lane, Ilford,  
Essex.

(72) Inventors

Paul Vaughan Cooper  
Steven James Adamson

(74) Agents

N. E. Fish

(54) Improvements in or relating to  
packaging arrangements

(57) A chip carrier packaging arrangement for use e.g. with a magnetic domain device or semiconductor integrated circuit is of a two-part construction and comprises a base part (1) and a lid (4), the base part being moulded of e.g. glass or ceramic and having a cavity (2) containing a chip (3), and a number of electrically conducting preferably non-magnetic pins (6) extending through the base part into the cavity, to which the chip may be electrically connected by interconnecting wires. The lid (4) may also be moulded of glass or ceramic and preferably sealed to the top surface of base part (1).

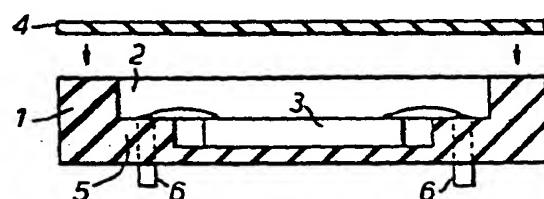


FIG. 2.

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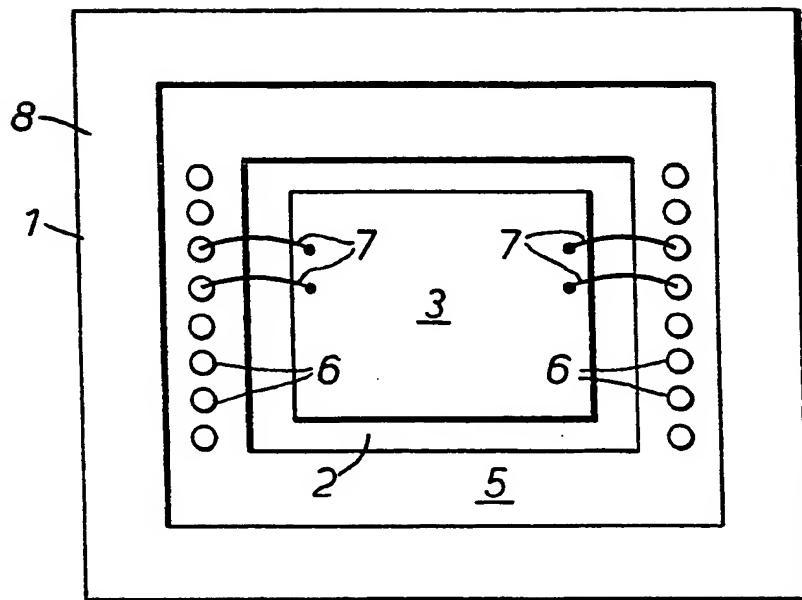


FIG. 1.

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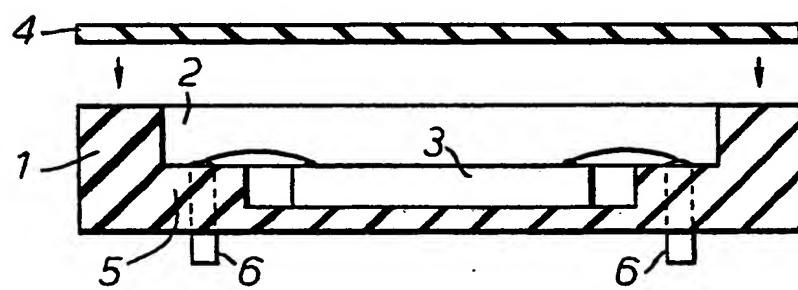


FIG. 2.

**SPECIFICATION****Improvements in or relating to packaging arrangements**

5 This invention relates to packaging arrangements and relates more specifically to chip packaging arrangements for use, for example, with circular magnetic domain devices, commonly referred to as bubble memory devices and semiconductor integrated circuit arrangements.

In some forms of bubble memory device it is known to provide a carrier for the bubble memory chip which enables the chip to be hermetically sealed and additionally affords protection to the chip making it far less vulnerable during subsequent assembly operations. One known form of chip carrier is fabricated in the form of a four layer package, three of the layers constituting a base of the package for containing the chip and a fourth layer constituting a lid of the package, the three-layer base having a cavity in two of the layers for receiving the chip and the middle layer providing a 'step' which carries electrical conductors which extend sideways through the carrier to which the chip is electrically connected. Such chip carriers are expensive to fabricate.

It is an object of the present invention to provide a chip carrier packaging arrangement of simpler and cheaper construction.

According to the present invention there is provided a chip carrier packaging arrangement of two-part construction comprising a base part and a lid, the base part being of moulded form and having a cavity therein for containing a chip and a plurality of electrically conducting pins preferably of non-magnetic material extending through the base part into the cavity to which a chip may be electrically connected.

40 In carrying out the invention the base part and optionally the lid may be fabricated by pressing a ceramic material in a 'green' state or by using a carbon mould with glass powder, the resulting part being fired to produce a ceramic or glass material, and the lid may be attached to the base part using for example a solder preform.

An exemplary embodiment of the invention will now be described, reference being made to the accompanying drawings in which:

50 Figure 1 is a plan view of the base part of a chip carrier packaging arrangement in accordance with the present invention; and

Figure 2 is a cross-sectional side view of the base part of Figure 1 with a lid.

55 The chip carrier packaging arrangement shown in the drawings consists of a moulded base part 1 which is provided with a cavity 2 for receiving a chip 3, the cavity 2 being closed by a lid 4. The cavity 2 in the base part 1 is provided with a peripheral step 5 which is provided with a plurality of electrically conducting, preferably non-magnetic pins 6 (e.g. of molybdenum, copper with lead/indium solder) which extend through the bottom of the base part 1, the pins 6 enabling external electrical connection to be made to the chip via individual inter-

**connecting wires 7.**

The top surface 8 of the base part 1 which makes contact with the lid 4 may be provided with a metal film, for example in the form of solder pre-form

70 which enables the lid 4 to be attached to the base part 1 so as to achieve a hermetic seal.

External connection to the pins 6 may be effected using individual wire connections or the carrier may be mounted in a printed circuit board. An

75 advantage in using pins is that an inspectable joint is provided which is not the case with the prior art chip carrier already referred to.

The base part 1 of the chip carrier and preferably also the lid 4 may be pressed from 'green' ceramic material or by use of a carbon mould with glass paper, the resulting part or parts being fired to produce a ceramic or glass part as the case may be.

80 The chip carrier described with reference to the accompanying drawings finds particular application in bubble memory devices but it is envisaged that it may be used in similar applications, such as in semiconductor integrated circuit chip packaging.

**CLAIMS**

90 1. A chip carrier packaging arrangement of two-part construction comprising a base part and a lid, the base part being of moulded form and having a cavity therein for containing a chip and a plurality of electrically conducting pins extending through the base part into the cavity to which a chip may be electrically connected.

2. A chip carrier packaging arrangement as claimed in claim 1 in which the electrically conducting pins are formed from non-magnetic material.

100 3. A chip carrier packaging arrangement as claimed in claim 1 or 2 in which the base part or the base part and the lid is/are fabricated by pressing a ceramic material in a 'green' state and by firing the resulting part or parts.

105 4. A chip carrier packaging arrangement as claimed in claim 1 or 2 in which the base part or the base part and the lid is/are fabricated by using a carbon mould with glass powder, the resulting part or parts being fired to produce a glass material.

110 5. A chip carrier packaging arrangement as claimed in any preceding claim in which the lid is attached to the base part.

6. A chip carrier packaging arrangement as claimed in claim 5 in which the lid is attached using a solder preform.

115 7. A chip carrier packaging arrangement substantially as herein described with reference to and as illustrated in Figures 1 and 2 of the accompanying drawings.